

Name _____ Date _____ Hour _____

Algebra Chapter 8 Pre-Test

8.1 Multiplication Properties of Exponents

Simplify the expression. Numerical exponents should be evaluated. (2 pts. Each)

1) $a \cdot a^3 \cdot a^5$

2) $m^4 \cdot m^6$

3) $4^2 \cdot 4^7$

4) $(2)^6$

5) $(y^3)^7$

6) $(a^2b^3)^4$

7) $(x^3y^4)^5$

8) $(-3a^3)^5$

9) $3x^3 \cdot (2x)^3$

10) $(-3xy)^2 \cdot (-x^3)$

11) $(w^2x^3y)^3 \cdot (wx^3y^2)^2$

12) $(-5s^3t^2)^2 \cdot (7s^2t^3)^3$

8.2 Negative and Zero Exponents

Evaluate the exponential expression. Write your answer as a fraction in simplest form. (2 pts. each)

13) 5^{-3}

14) $4\left(\frac{1}{2}\right)^{-1}$

15) $6^{-9} \cdot 6^7$

Rewrite the expression with positive exponents. (2 pts. Each)

16) $x^4 y^{-2}$

17) $(x^{-7} y^4)$

18) $\frac{1}{5x^{-9}y^4}$

8.3 Division Properties of Exponents

Evaluate the expression. Write your answer as a fraction in simplest form. (2 pts. each)

19) $\frac{9^5}{9^3}$

20) $\frac{4 \cdot 4^3}{4^7}$

21) $\left(\frac{6}{4}\right)^{-2}$

Simplify the expression. The simplified expression should have no negative exponents. (3 pts. each)

22) $\left(\frac{3x^2y^3}{4xy^2}\right)^2$

23) $\frac{4x^5y^7}{2xy^2} \cdot \frac{5x^3y}{3y^2}$

24) $\frac{3x^{-4}y^3}{x^5y^{-4}} \cdot \frac{(3x^3y)^{-2}}{xy^2}$

8.4 Scientific Notation

Rewrite in decimal form. (2 pts. each)

25) $3.29 \cdot 10^{-4}$

26) $6.45 \cdot 10^5$

Rewrite in scientific notation. (2 pts. each)

27) 6,300,000

28) .0000456

Evaluate the expression without using a calculator. Show all work!! Write the result in decimal form. (3pts. each)

29) $(5 \cdot 10^{-3}) \cdot (7 \cdot 10^{-2})$

30) $(3 \cdot 10^4) \cdot (4 \cdot 10^{-2})$

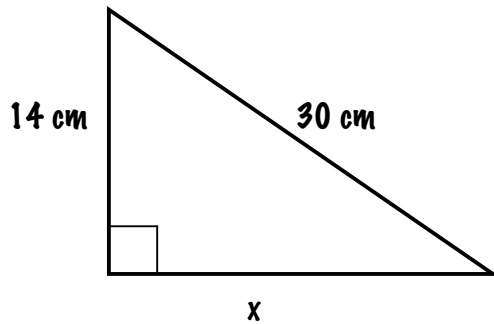
31) $\frac{6 \cdot 10^{-6}}{2 \cdot 10^{-3}}$

32) $\frac{8 \cdot 10^4}{2 \cdot 10^{-2}}$

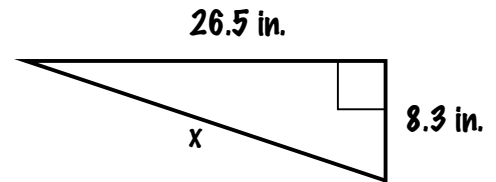
Pythagorean Theorem

Find the missing side using the Pythagorean Theorem. Round answers to the nearest hundredth if necessary. (4 points each)

33)



34)



Make a sketch for each right triangle situation and solve.

35) A 5-foot tall tree casts an 8-foot long shadow on the ground. How far is it from the end of the shadow to the top of the tree?

36) A 10-foot ladder is leaning against a house with its base four feet from the base of the house. At what height does the ladder touch the house?